correct as the design of the machine will permit; third, correct alignment of the headstock in regard to the travel of the platen; and fourth, proper truing of wheels.

Wheels for internal grinding should be of a medium grit, soft grade and open bond. As a rule the grit should never be finer than 60 grit; in fact, a coarser grit can often be used to advantage. Wheels with line grit cut slowly, and fill up readily, glazing and invariably heating the work, and causing chattering and other troubles. In fact, the only argument in favor of a fine grit wheel is that it leaves a smooth surface. However, no matter how smooth the surface appears, even under a powerful glass, it must be lapped to remove the wheel marks.

For the internal grinding of jig bushings, aloxite wheels, if inch in diameter, f-inch face, 60 grit, P grade, 0-495 bond, may be used with good results, the wheel speed being 12,000 R.P.M. For bushings averaging *2*| inches long, 14-inch hole, the holes rough-bored, 0.015 inch being left for grinding, the grinding time per bushing, including chucking and truing up, would be about twelve minutes each, and the finish left good, 0.0005 inch being sufficient to lap out the wheel marks. Reference is made to the holes being rough-bored; this is good practice, as the rather rough surface tends to wear the wheel just a little while removing the fire scale, thus preventing the wheel from glazing. Once the scale is removed from the hole, the wheel should not glaze readily, provided it is of the proper grit and grade.

Wheels for internal grinding should be run at a surface speed of 5000 feet per minute. This, however, is a general rule open to exceptions. A safe practical rule to follow is to speed up the wheel if it wears away too readily, and to reduce the speed where the wheel shows a tendency to glaze. Attention to this rule will often save much trouble. The toolmaker should bear in mind the fact that it is easier to adjust the speed to suit the wheel than it is to try to keep on hand a large variety of wheels to suit all speed conditions.

Assuming that the work in question is to be done on an ordinary universal grinder, the headstock must be set parallel with